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New records of lichens and allied fungi from the Leningrad Region, Russia. IX

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Abstract: Eight species of lichens and seven lichenicolous fungi are reported for the first time for St. Petersburg, the whole Leningrad Region or its western or eastern parts. The lichen *Xylographa septentrionalis* is reported for the first time for Russia, Europe and Asia, the lichenicolous fungus *Skyttea gregaria* is new for Russia, the lichen *Xylographa pallens*, lichenicolous fungi *Didymellopsis collematum* and *Intralichen lichenicola* are new for the North-Western European Russia. The most interesting records are briefly discussed.

Keywords: St. Petersburg, Russia, *Didymellopsis collematum*, *Intralichen lichenicola*, *Skyttea gregaria*, *Xylographa pallens*, *Xylographa septentrionalis*

INTRODUCTION

The present paper continues the series of publications on new and noteworthy findings of lichens and allied fungi from the Leningrad Region and St. Petersburg (see e.g. Kuznetsova et al., 2007, 2012; Stepanchikova et al., 2010, 2011; Himelbrant et al., 2014, 2016, 2017). *Skyttea gregaria* and *Xylographa septentrionalis* are reported for the first time for Russia, *Didymellopsis collematum*, *Intralichen lichenicola* and *Xylographa pallens* are new for the North-Western European Russia. Five species (*Arctomia fascicularis*, *Xanthomendoza weberi*, *Peltigera occidentalis*, *Trichonectria anisospora* and *Usnea florida*) are new for the whole Leningrad Region (including St. Petersburg), three (*Lecidea leprarioides*, *Taeniolella beschiana* and *Tremella phaeophysciae*) – for St. Petersburg, two (*Dermatocarpon meiophyllizum* and *Lichenodiplis lecanorae*) – for the eastern part of the Leningrad Region.

The revealed lichen diversity of Leningrad Region and St. Petersburg counts now ca. 1090 species, including 940 lichens, 120 lichenicolous and 30 saprobic fungi.

MATERIAL AND METHODS

Specimens were collected by Dmitry E. Himelbrant, Irina S. Stepanchikova, Ekaterina S. Kuznetsova, Aleksandra V. Dyomina and Vladimir A. Plotnikov in 2007–2017 in the eastern and western parts of Leningrad Region or in St. Petersburg, and are deposited in the lichen herbaria of St. Petersburg State University (LECB) and Institute of Botany, Nature Research Centre in Vilnius (BILAS). Furthermore, we investigated several specimens of lichens and lichenicolous fungi kept in the herbarium of University of Helsinki (H). The cited specimens were mainly identified by the authors of the paper, if otherwise, the identifier's name is indicated in the annotation of the species.

The names of the main collectors in the species list are abbreviated as follows: DH – Dmitry E. Himelbrant, EK – Ekaterina S. Kuznetsova, IS – Irina S. Stepanchikova, AD – Aleksandra V. Dyomina. The subdivision of the Leningrad Region (LR) was published in our previous paper (Stepanchikova et al., 2010); the following abbreviations have been used here: ELR – Eastern

Leningrad Region, SPb – St. Petersburg, WLR – Western Leningrad Region. The biogeographical provinces of Eastern Fennoscandia are abbreviated traditionally (Kotiranta et al., 1998): Ik – Isthmus karelicus, Ka – Karelia australis, Kol – Karelia olonetsensis. All geographical coordinates are given in the spatial reference system WGS 1984. Lichenicolous fungi are marked with #. The nomenclature of taxa generally follows Nordin et al. (2011) and Randlane et al. (2016); for the species not mentioned in the checklists, special papers are cited (Fedorenko et al., 2012; Spribille et al., 2014).

THE SPECIES

Arctomia fascicularis (L.) Otálora & Wedin – WLR, Kingisepp District, Kotelsky protected area, NE shore of Lake Babinskoe, SE of Savikino, 59°36'07.1"N, 28°36'01.9"E, alt. 20 m, old-growth birch-aspen-black alder forest, on bark of *Populus tremula* L., 15.04.2007, leg. DH (H s. n.); ELR, Podporozhje District, NE of Rodionovo, bank of the Kuzra River, 60°57'16"N, 35°10'34"E, old-growth spruce forest (age of spruces 180–200 years) with *Sphagnum* mosses, old pines, sparse aspens and birches, on bark of *P. tremula*, 03.10.2014, leg. DH & IS (LECB); ELR, Boksitogorsk District, W of Somino, between lakes Loshevo and Lachta, 59°20'42"N, 34°49'59"E, alt. 167 m; spruce forest with old aspens and herbs on the slope near the road, on bark of *P. tremula*, 18.07.2011, leg. IS (H s. n.). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Tarasova & Stepanchikova, 2016). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011). Characterized by subfoliose thallus forming thick (and swelling when wet) cushions to 2–3 cm diam., membranaceous and fenestrate, with numerous accessory lobules (Jørgensen, 2007). Apothecia should be common, but not in material from LR.

Bacidina sulphurella (Samp.) M. Hauck & V. Wirth – SPb, Petrodvorets District, Strel'na, forest between the Strelka River and Novye Zavody Street, 59°50'02.9"N, 29°59'11.4"E, pine forest with dense rowan undergrowth and young oaks, on bark of *Sorbus aucuparia* L., 03.06.2017, leg. DH & IS (LECB). – Previously reported from SPb (Stepanchikova et al., 2015), but the identification was revised later (Himelbrant et al., 2017). Known from WLR (Stepanchikova et al., 2017). Distribution in North-Western European Russia outside LR and SPb: not recorded. Distribution in Fennoscandia and Baltic countries: Estonia (Randlane et al., 2016), Lithuania (Motiejūnaitė, 2017).

Dermatocarpon meiophyllizum Vain. – ELR, Kol, Podporozhje District, pier on the Vazhinka River in the village Grishino, 61°05'11.6"N, 34°05'12.8"E, on siliceous boulders in the river, 07.07.2016, leg. IS & AD (LECB). – New to ELR, known from SPb (Himelbrant et al., 2016). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), probably Estonia (Randlane et al., 2016: doubtful record).

Didymellopsis collematum (J. Steiner) Grube & Hafellner – ELR, Ka, Vyborg District, town of Vyborg (former Viipuri), [60°43'N, 28°45'E], on thallus of *Enchylium bachmanianum* (Fink) Otálora et al. growing on terricolous mosses, 1851, leg. W. Nylander (H 6022460). – New to North-Western European Russia, in Russia known from Krasnoyarsk Territory (Zhurbenko & Santesson, 1996). Distribution in Fennoscandia and Baltic countries: Estonia (Randlane et al., 2016). Characterized by perithecioid ascocarps (pseudothecia) 0.2–0.3 mm diam., brown-pigmented dark exciple, 8-spored fissitunicate asci 80–100 × 13–15 µm, 1-septate hyaline ascospores 20–26 × 5–10 µm and inhabiting *Collema* s. lat. Another *Didymellopsis* known to occur on *Collema* s. lat. and *Leptogium* s. lat., *D. pulposi* (Zopf) Grube & Hafellner, is characterized by smaller ascomata (0.17–0.2 mm diam.), shorter ascospores (13–22 × 5–7 µm), and 4–8-spored, shorter asci (40–90 × 10.5–13.5 µm) (Grube & Hafellner, 1990). Our specimen had 8-spored asci and ascospores measuring 20–23 × 5.5–7 µm.

Fellhanera gyrophorica Sérus., Coppins, Diederich & Scheid. – WLR, Kingisepp District, 0.2 km S of Lake Kopanskoe, S to the highway, 59°42'02.8"N, 28°42'10.8"E, old-growth black alder-birch-spruce forest, on bark of old *Picea* sp., 13.04.2007, leg. DH (H s. n.). – We previously reported this specimen from the Leningrad Region as the only from Russia (Handbook..., 2008), but without collecting data (exact locality etc.). Distribution in Fennoscandia and Baltic countries: Estonia (Randlane et al., 2016).

Characterized by greenish matt thallus consistig of goniocysts, round or irregular-shaped rose-brown apothecia 0.3–0.7 mm diam. (absent in our material); pycnidia numerous, very distinctive – 0.1–0.25 mm diam., sessile to shortly stipitate, rose to light-brown, with widely open ostiole and simple pycnospores (2.5)3–3.5(4.5) × (0.7)1–1.5 µm, contain gyrophoric acid (Handbook..., 2008).

Intralichen lichenicola (M.S. Christ. & D. Hawksw.) D. Hawksw. & M. S. Cole – SPb, Petrodvorets District, Strel'na, proposed protected area 'Strelka River Valley', between the Strelka River and Novye Zavody Street, 59°50'13.6"N, 30°00'04.7"E, anthropogenic wasteland, on apothecia of *Candelariella* cf. *vitellina* (Hoffm.) Müll. Arg. on concrete post, 04.06.2017, leg. DH & IS (BILAS 10928). – New to North-Western European Russia, the nearest localities in Russia belong to Tver' Region (Notov et al., 2011). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Lithuania (Motiejūnaitė, 2017). Dematiaceous hyphomycetous fungus with immersed mycelium dispersed inside the host hymenium and turning apothecial disc black (Fig. 1) and forming conidiophores on its surface; conidia pale to dark brown, very variable in shape, multicellular (18–25 x 6–12 µm), arising as elongated chains of cells (Hawksworth, 1979). Our specimen was in concurrence with the description in the protologue.

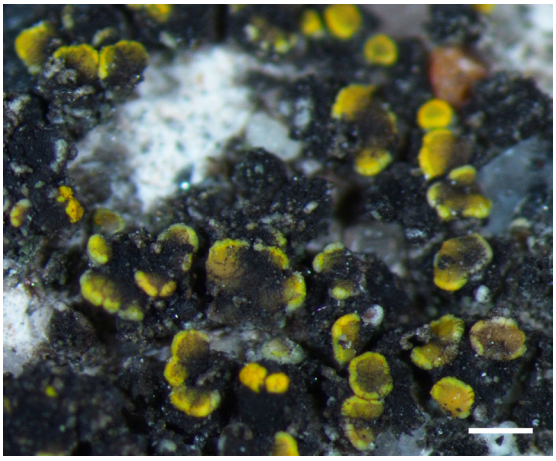

Fig. 1. Apothecia of *Candelariella* cf. *vitellina* darkened by infection of *Intralichen lichenicola* (BILAS 10928). Scale bar = 1 mm.

Lecidea leprarioides Tønsberg – SPb, Ik, Kurortny District, Komarovo (former Kellomäki), nature monument 'Komarovsky Bereg', W of the railway station Komarovo, 60°11'17"N, 29°46'02"E, pine forest with *Calluna vulgaris* L., on bark of *Pinus sylvestris* L., 07.05.2017, leg. DH & IS (LECB). – New to SPb, known from ELR (Kuznetsova et al., 2007) and WLR (Stepanchikova et al., 2013b). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007), Novgorod Region (Stepanchikova et al., 2013a). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016).

Lichenodiplis lecanorae (Vouaux) Dyko & D. Hawksw. – ELR, Kol, Podporozhje District, proposed protected area 'Severo-Svirsky', NW of Soginitsy, right side of the Svyatukha River, 61°13'06.6"N, 33°56'13.6"E, old-growth spruce forest with *Sphagnum* spp., on apothecia and thallus of *Mycoblastus alpinus* (Fr.) Th. Fr. ex Hellb. on bark of *Picea* sp. (branches), 03.07.2016, leg. AD & IS (BILAS). – New to ELR, known from WLR (Stepanchikova et al., 2011). Distribution in North-Western European Russia outside of LR: not reported. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Latvia (Motiejūnaitė et al., 2016), Lithuania (Motiejūnaitė, 2017).

Peltigera occidentalis (E. Dahl) Kristinsson – WLR, Priozersk District, S to Lake Parijärvi (Dvinskoe), ca 6 km S of Hiitola, [61°09'N, 29°47'E], on soil, 01.08.1935, leg. M. Laurila, det. O. Vitikainen (H s. n.). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011). The species resembles *P. neopolydactyla* (Gyeln.) Gyeln., from which it differs by having thicker, rigid thallus which is greenish when moist (Vitikainen, 2007).

Peltigera venosa (L.) Hoffm. – WLR, Luga District, proposed protected area 'Jaschera-Lemovzha', valley of the Jaschera River, 58°53'45.9"N, 29°50'33.3"E, steep slope of deep river valley, on sandstone, 11.05.2017, leg. IS & Vladimir A. Plotnikov (LECB). – First record in WLR after 1935 (Räsänen, 1939), and probably the only locality known now in LR. In 1994 the species was collected in ELR by Orvo Vitikainen

(Kuznetsova et al., 2007), but we did not found it at the same locality (Cape Podschel'je) in course of our later field studies. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007), Pskov Region (Istomina & Likhacheva, 2010). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Latvia (Āboliņa et al., 2015), Lithuania (Motiejūnaitė, 2017: extinct).

Skyttea gregaria Sherwood, D. Hawksw. & Coppins – WLR, Ik, Priozersk District, E part of Konevets Island, SW of Cape Rodushka, 60°51'00.5"N, 30°36'58.9"E, old-growth spruce forest with *Vaccinium myrtillus* L. and patches of *Sphagnum* spp., on thallus of *Violella fucata* (Stirt.) T. Sprib. growing on twig of *Picea abies*, 04.08.2017, leg. EK, IS & DH (BILAS 10921); ELR, Kol, Podporozhje District, proposed protected area 'Severo-Svirsky', NW of Soginitsy, right side of the Svyatukha River, 61°13'13.4"N, 33°55'56.3"E, old-growth spruce forest with *Sphagnum* spp., on thallus of *V. fucata* on bark of *Picea* sp., 04.07.2016, leg. AD & IS (BILAS); 80 m W to Lake Maloe Kujvozero and 100 m W to the railway, 61°07'01.8"N, 34°23'44.3"E, in wet old-growth spruce forest with *Sphagnum* spp., on thallus of *V. fucata* on twigs of *Picea* sp., 02.07.2016, leg. IS & AD (BILAS 10923). New to Russia. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016). Apparently a host-specific lichenicolous fungus, characterized by dark-greyish apothecia, at first immersed, becoming erumpent, 0.1–0.2 mm in diameter, with urceolate disc, striate inrolled margin when dry (Fig. 2), with greenish exciple which does not react K+ violet and which is covered with olive-brown hairs (visible under microscope), 5–20 µm long. Asci I–, 8-spored; spores ovoid, simple, 7–8.5 × 3–3.5(–4) µm (Sherwood et al., 1980; Diederich & Etayo, 2000).

Taeniolella beschiana Diederich – SPb, Ik, Kurortny District, Komarovo (Kellomäki), nature monument 'Komarovsky Bereg', W of the railway station Komarovo, 60°11'17"N, 29°46'02"E, pine forest with *Calluna vulgaris*, on thallus of *Cladonia* sp. (Fig. 3) on soil, 07.05.2017, leg. DH & IS (BILAS 10927). – New to SPb, known from WLR (Himelbrant et al., 2017). Distribution in North-Western European Russia outside of LR:

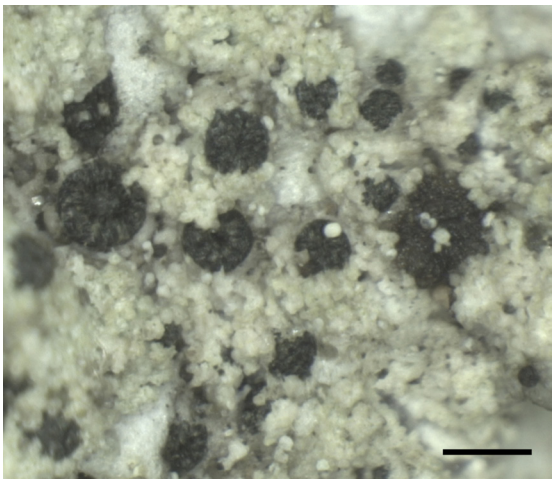

Fig. 2. Ascomata of *Skyttea gregaria* on thallus of *Violella fucata* (BILAS 10921). Scale bar = 0.2 mm.

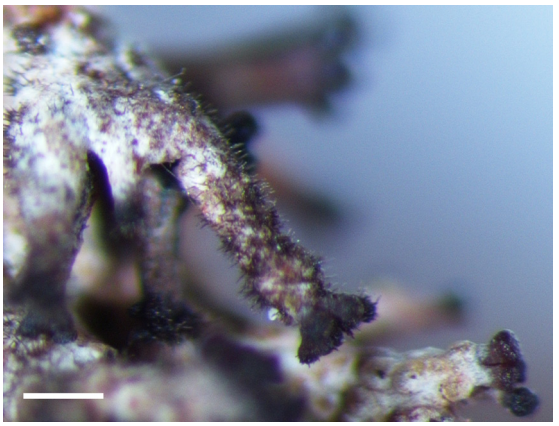

Fig. 3. Mycelium of *Taeniolella beschiana* on thallus of *Cladonia* sp. (BILAS 10927). Scale bar = 0.5 mm.

Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Estonia (Randlane et al., 2016), Lithuania (Motiejūnaitė, 2017).

Tremella phaeophysciae Diederich & M. S. Christ. – SPb, Pushkin District, nature monument 'Outcrops on the Popovka River', Popovka River valley, SW of Pavlovsk railway station, 59°39'37"N, 30°22'09"E, grey alder-aspen floodplain forest with shrubs, on thallus of *Phaeophyscia orbicularis* (Neck.) Moberg on bark of *Padus*

avium Mill., 08.05.2010, leg. DH & EK (LECB); SPb, Petrodvorets District, Strel'na, proposed protected area 'Strelka River Valley', left bank of the Strelka River, 59°50'09.0"N, 30°01'16.1"E, old willows with *Padus avium* on the meadow, on thallus of *Phaeophyscia orbicularis* on bark of *Padus avium*, 04.06.2017, leg. DH & IS (LECB). – New to SPb, known from WLR (Himelbrant et al., 2016). Distribution in North-Western European Russia outside of LR: not recorded. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2016), Latvia (Motiejūnaitė et al., 2016), Lithuania (Motiejūnaitė, 2017).

Trichonectria anisospora (Lowen) van den Boom & Diederich – ELR, Kol, Podporozhje District, proposed protected area 'Severo-Svirsky', N of Lake Vachozero, 61°04'16.2"N, 34°20'21.2"E, birch forest with young spruces, on thallus of *Hypogymnia physodes* (L.) Nyl. on spruce branches, 06.20.2017, leg. DH & IS (LECB); same place, 61°03'30.8"N, 34°20'50.8"E, aspen-spruce forest, on thallus of *H. physodes* on spruce branches, 06.20.2017, leg. DH & IS (LECB). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Finland (Stenroos et al. 2016), Estonia (Randlane et al., 2016), Latvia (Motiejūnaitė et al., 2016), Lithuania (Motiejūnaitė, 2017). Characterized by orange setose perithecia, initially immersed, later superficial, 1-septate spores, strongly constricted at septum, with unequal cells, and by variable ascospore form and size, even in the same ascus (Lowen, 1989). The fungus is narrowly host-specific, causes characteristic blue-green, clearly bordered infection patches on upper surface of host thallus and apparently is spreading lately (Brackel, 2006; Motiejūnaitė et al., 2011).

Usnea florida (L.) F. H. Wigg. – WLR, Luga District, proposed protected area 'Jaschera-Lemovzha', valley of the Jaschera River, 58°53'46.4–46.9"N, 29°50'36.2–45.2"E, elm-linden-maple-spruce forest in deep river valley, on bark of *Ulmus* sp., *Acer platanoides* L. and *Tilia cordata* Mill. (branches), 11.05.2017, leg. Vladimir A. Plotnikov & IS (H s. n., LECB). – First reliable record from LR. The species was reported from LR and SPb several times in the past, latest in 1922 (Elenkin, 1922), but no correctly identified specimens are known. Distribution in North-Western European Russia outside of LR: Pskov Region (Istomina & Likhacheva, 2010). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Latvia (Āboliņa et al., 2015), Lithuania (Motiejūnaitė, 2017: extinct). Morphologically very distinctive abundantly fertile shrubby species with large fibrillose apical apothecia containing alectorialic acid, and with papillose and fibrillose main branches while soralia or isidiomorphs are absent (Smith et al., 2009; Clerc, 2011).

Xanthomendoza weberi (S.Y. Kondr. & Kärnefelt) L. Lindblom – WLR, Ka, Vyborg District, ca 1.5 km NEE of Sovetsky (former Rokkala near St. Johannes), [60°33'N, 28°43'E], on bark of *Betula* sp., 20.04.1895, leg. Bertil R. Poppius, det. Sergii Y. Kondratyuk, 2007 (H 8003826). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Latvia (Motiejūnaitė et al., 2016). In the discussed region could be mistaken with *X. fulva* (Hoffm.) Søchting, Kärnefelt & S.Y. Kondr., from which differs by longer, more branched lobes and presence of helmet-shaped soralia (Handbook..., 2004). The material collected by Poppius partly has helmet-shaped soralia and is in good accordance with the description (Kondratyuk & Kärnefelt, 2003).

Xylographa pallens (Nyl.) Malmgren – ELR, Ik, Priozersk District, Torfyanoe (former Konnitsa, Pyhäjärvi), NW vicinity of Lake Komsomol'skoe (Kiimajärvi), [60°51'N, 29°56'E], on lignum, 07.1897, leg. Carl Gustaf Wilhelm Lång, det. Toby Spribille [H 8003830, previously identified as *X. parallela* (Ach.: Fr.) Fr.]. – New to North-Western European Russia, previously reported from Murmansk Region (Spribille et al., 2014). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011; Spribille et al., 2014). Characterized by ascomata with lateral growth of parallela-type up to 2.8 mm long, clustered, forming 'stars'; thallus immersed to superficial, containing stictic acid as major substance (Spribille et al., 2014).

Xylographa septentrionalis T. Sprib. – ELR, Ik, Kirillovskoe (Muolaa, Perkjärvi), [60°28'N, 29°20'E], on wood, 23.10.1893, leg. Alfred Oswald Kihlman (Kairamo), det. Toby Spribille [H 8004005, previously identified as *X. vitiligo*

(Ach.) J.R. Laundon]. – New to Russia and Europe, described from Canada (Spribille et al., 2014). We also report the species here for the first time for Asia: several specimens from basin of the Yenisei River by M. Brenner are deposited in H [det. Toby Spribille, H s. n., previously identified as *X. spilomatica* (Anzi) Th. Fr. = *X. vitiligo* and *X. abietina* (Pers.) Zahlbr. = *X. parallela*]: Krasnoyarsk Territory ('Guv. Jenisejsk'), former settlement Tolsty Nos [70°10'N, 83°12'E], on wood, 31.08.1876, 27.08.1876 and 04.09.1876, leg. M. Brenner (1560 h-A, 18e and 685j, respectively); Dudinka [69°25'N, 86°10'E], on wood, 07.08.1876, leg. M. Brenner (1657g); 'Polovinka' (basin of the Polovinka River), on wood, 15.09.1876, leg. M. Brenner (504d); Nikandrovskie islands [70°40'N, 83°14'E], on wood, 17.08.1876, leg. M. Brenner (1838b1). Similar to *X. vitiligo*, but the soralia and goniocysts are very small and often blackish, so that it is easily overlooked (Fig. 4); contains stictic and norstictic or only norstictic acid. Apothecia, when present, resemble those of *X. parallela* (Spribille et al., 2014).

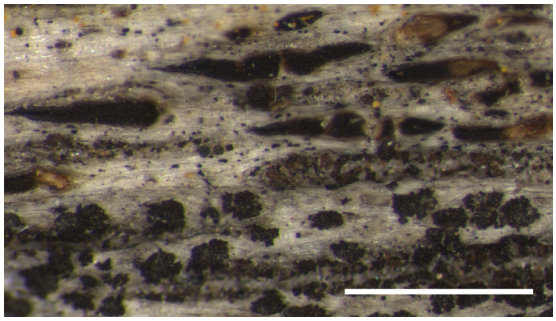

Fig. 4. Thallus and apothecia of *Xylographa septentrionalis* (H 8004005). Scale bar = 1 mm. Photo by Saara Velmala.

Taxa excluded from the list of LR:

Lecidea plana (J. Lahm) Nyl. – reported by Vainio (1934); the specimens (H 8005263, 8005264) belong to *Lecidea lapicida* (Ach.) Ach.

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